

IN THE CLAIMS:

Please amend claims as follows:

1. (original) A stainless steel for a metal gasket having a chemical composition consisting essentially of, in mass %,

C: at most 0.03%, Si: at most 1.0%

Mn: at most 2.0%, Cr: at least 16.0% and at most 18.0%,

Ni: at least 6.0% and at most 8.0%, N: at most 0.25%,

Nb: 0 – 0.30%, and a remainder of Fe and unavoidable impurities,

and having a duplex phase structure of martensite with an area ratio of at least 40% and a remainder of austenite, or a single phase structure of martensite, and which can be used to manufacture a metal gasket having Hv of at least 500 and having chromium nitride precipitated in the martensite phase by again after forming.

2. (original) A stainless steel for a metal gasket as set forth in claim 1, wherein the chemical composition contains at least 0.01% and at most 0.30% of Nb.

3. (once amended) A method for producing a stainless steel for a metal gasket characterized by including a step of performing final annealing of a cold rolled steel having the chemical composition set forth in claim 1 ~~or claim 2~~ to form a recrystallized structure having recrystallized grains with an average grain diameter of at most 5 μm having an area ratio of 50 – 100% and an uncrystallized portion having a area ratio of 0 – 50%, and a step of then performing temper rolling with a reduction of at least 30%.

4. (once amended) A metal gasket comprising a stainless steel having the chemical composition set forth in claim 1 ~~or claim 2~~ and having a duplex phase structure of martensite in which chromium nitride is precipitated with an area ratio of at least 40% and a remainder of austenite, or a single phase structure of martensite in which chromium nitride is precipitated, the gasket having Hv of at least 500.

5. (original) A metal gasket as set forth in claim 4 on which rubber coating is performed.

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6. (original) A metal gasket as set forth in claim 5, wherein the gasket is for an engine.

7. (once amended) A method of manufacturing a metal gasket comprising carrying out forming of the stainless steel of claim 1 ~~or claim 2 or of the stainless steel produced by the method set forth in claim 3~~, and performing aging and rubber coating of the formed piece at 200 - 500°C.

8. (original) A method as set forth in claim 7 wherein the aging is accomplished by heat treatment at a temperature of at most 350°C at the time of rubber coating.

9. (new) A metal gasket comprising a stainless steel having the chemical composition set forth in claim 2 and having a duplex phase structure of martensite in which chromium nitride is precipitated with an area ratio of at least 40% and a remainder of austenite, or a single phase structure of martensite in which chromium nitride is precipitated, the gasket having Hv of at least 500.

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10. (new) A method of manufacturing a metal gasket comprising carrying out forming of the stainless steel of claim 2, and performing aging and rubber coating of the formed piece at 200 - 500°C.

11. (new) A method of manufacturing a metal gasket comprising carrying out forming of the stainless steel of the stainless steel produced by the method set forth in claim 3, and performing aging and rubber coating of the formed piece at 200 - 500°C.

Claims

1. A stainless steel for a metal gasket having a chemical composition consisting essentially of, in mass %, C: at most 0.03%, Si: at most 1.0%
5 Mn: at most 2.0%, Cr: at least 16.0% and at most 18.0%, Ni: at least 6.0% and at most 8.0%, N: at most 0.25%, Nb: 0 - 0.30%, and a remainder of Fe and unavoidable impurities, and having a duplex phase structure of martensite with an area ratio of at least 40% and a remainder of austenite, or a single phase structure of martensite, and
10 which can be used to manufacture a metal gasket having Hv of at least 500 and having chromium nitride precipitated in the martensite phase by aging after forming.
2. A stainless steel for a metal gasket as set forth in claim 1, wherein the chemical composition contains at least 0.1% and at most 0.30% of Nb.
3. A method of producing a stainless steel for a metal gasket characterized by
15 including a step of performing final annealing of a cold rolled steel having the chemical composition set forth in claim 1 or claim 2 to form a recrystallized structure having recrystallized grains with an average grain diameter of at most 5 μm having an area ratio of 50 - 100% and an uncrystallized portion having an area ratio of 0 - 50%, and a step of then performing temper rolling with a reduction of at least 30%.
- 20 4. A metal gasket comprising a stainless steel having the chemical composition set forth in claim 1 or claim 2 and having a duplex phase structure of martensite in which chromium nitride is precipitated with an area ratio of at least 40% and a remainder of austenite, or a single phase structure of martensite in which chromium nitride is precipitated, the gasket having Hv of at least 500.
- 25 5. A metal gasket as set forth in claim 4 on which rubber coating is performed.

6. A metal gasket as set forth in claim 5, wherein the gasket is for an engine.

7. A method of manufacturing a metal gasket comprising carrying out forming of the stainless steel of claim 1 or claim 2 or of the stainless steel produced by the method set forth in claim 3, and performing aging and rubber coating of the formed piece at 200 - 500°C.

8. A method as set forth in claim 7 wherein the aging is accomplished by heat treatment at a temperature of at most 350°C at the time of rubber coating.

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